Docket No.: 1082.1035

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:

Osamu TOYODA, et al.

Serial No. 09/763,572 Group Art Unit: 2873

Confirmation No. 7883

Filed: February 26, 2001 Examiner:

For: PLASMA DISPLAY PANEL AND METHOD FOR FABRICATING THE SAME

SUBMISSION OF ENGLISH LANGUAGE TRANSLATION OF INTERNATIONAL PRELIMINARY EXAMINATION REPORT

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Applicants enclose herewith a copy of the English language translation of the International Preliminary Examination and form PTO/IB/338.

If any further fees are required in connection with the filing of this Submission, please charge same to our Deposit Account No. 19-3935

Respectfully submitted,

STAAS & HALSEY LLP

Date: June 18, 2001 By: _____

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PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF TRANSMITTAL OF COPIES OF TRANSLATION OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Rule 72.2)

To:

NOGAWA, Shintaro
Minamimorimachi Park Building
1-3, Nishitenma 5-chome
Kita-ku, Osaka-shi
Osaka 530-0047
JAPON

Date of mailing (day/month/year) 30 April 2001 (30.04.01)	
Applicant's or agent's file reference FT3139PC / NK	**IMPORTANT NOTIFICATION**
International application No. PCT/JP99/04141	**International filing date** (day/month/year) 30 July 1999 (30.07.99)
Applicant FUJITSU LIMITED et al	

1. Transmittal of the translation to the applicant.

The International Bureau transmits herewith a copy of the English translation made by the International Bureau of the international preliminary examination report established by the International Preliminary Examining Authority.

2. Transmittal of the copy of the translation to the elected Offices.

The International Bureau notifies the applicant that copies of that translation have been transmitted to the following elected Offices requiring such translation:

EP,US

The following elected Offices, having waived the requirement for such a transmittal at this time, will receive copies of that translation from the International Bureau only upon their request:

KR

3. Reminder regarding translation into (one of) the official language(s) of the elected Office(s).

The applicant is reminded that, where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report.

It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned (Rule 74.1). See Volume II of the PCT Applicant's Guide for further details.

The International Bureau of WIPO
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1211 Geneva 20, Switzerland

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3T

Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference FT3139PC	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/JP99/04141	International filing date (*day/month/year*) 30 July 1999 (30.07.99)	Priority date (*day/month/year*) 28 August 1998 (28.08.98)

International Patent Classification (IPC) or national classification and IPC
H01J 17/49, 11/00, 11/02, 9/02

Applicant
FUJITSU LIMITED

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 8 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of _____ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☒ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
17 February 2000 (17.02.00)	01 November 2000 (01.11.2000)
Name and mailing address of the IPEA/JP Facsimile No.	Authorized officer Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/JP99/04141

I. Basis of the report

1. With regard to the **elements** of the international application:*

☒ the international application as originally filed

☐ the description:

pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

☐ the claims:

pages _____, as originally filed
pages _____, as amended (together with any statement under Article 19
pages _____, filed with the demand
pages _____, filed with the letter of _____

☐ the drawings:

pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

☐ the sequence listing part of the description:

pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language _____ which is:

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).

☐ the language of publication of the international application (under Rule 48.3(b))

☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3)

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* *Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).*

** *Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.*

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/JP99/04141

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	4,6,12,14-16,18-22	YES
	Claims	1-3,5,7-11,13,17	NO
Inventive step (IS)	Claims	6,14-16,18-19	YES
	Claims	1-5,7-13,17,20-22	NO
Industrial applicability (IA)	Claims	1-22	YES
	Claims		NO

2. Citations and explanations

[List of Cited Documents]

Document 1: JP, 63-232238, A (Fujitsu Ltd), 28 September 1988 (28.09.88)

Document 2: JP, 5-41165, A (Pioneer Electronics Corp.), 19 February 1993 (19.02.93)

Document 3: JP, 9-213215, A (Nippon Sheet Glass Co., Ltd.), 15 August 1997 (15.08.97)

Document 4: JP, 10-188820, A (NEC Corp.), 21 July 1998 (21.07.98)

Document 5: JP, 50-159246, A (Hitachi, Ltd.), 23 December 1975 (23.12.75)

Document 6: JP, 7-45191, A (Dainippon Printing Co., Ltd.), 14 February 1995 (14.02.95)

Document 7: JP, 7-249379, A (Oki Electric Industry Co., Ltd.), 7 September 1995 (07.09.95)

[Explanation]
Claim 1 does not appear to involve novelty or an inventive step in view of document 1, cited in the ISR.
(Remarks)
Document 1 describes a plasma display panel provided with band-like partitions (i.e., separator 4 and the partition layers 6, 7 parallel to said separator) for dividing a discharge space and phosphor layers inside long, narrow grooves disposed between said band-like partitions, the plasma display panel having wall-like projections (i.e., the partition layers 6, 7 perpendicular to separator 4) lower than said band-like partitions formed inside the long, narrow grooves disposed between said partitions. (See Figures 1 and 2.)

Upon viewing Fig. 1, it is clear that the phosphor formation surface area of the panel is increased by forming the phosphor layers so that they reach the lateral surface of the projections.

Claim 1 does not appear to involve novelty or an inventive step in view of document 2, cited in the ISR.
(Remarks)
The wall-like projection (sub rib 6a) of the plasma display panel described in document 2 increases the formation surface area of the phosphor. (See Figures 1 and 2.)

Claim 1 does not appear to involve novelty or an inventive step in view of document 3.
(Remarks)
Document 3 describes a plasma display panel provided with band-like partitions (partitions 9) for dividing a discharge space and phosphor layers inside long, narrow grooves disposed between said band-like partitions, the

Supplemental Box
(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of Box V (Citations and explanations):

plasma display panel having wall-like projections (i.e., the protruding parts disposed between semispherical recessed parts 18) lower than said band-like partitions formed inside the long, narrow grooves disposed between said partitions. (See Paragraph 0037 and Figure 4.)

Here, it is clear that providing projections increases the surface area of the recessed parts in which the phosphors of said panel are formed.

Claim 1 does not appear to involve an inventive step in view of documents 4 and 5.
(Remarks)
The idea of applying the technology for providing undulations in the surface of a phosphor layer described in document 5 to the plasma display panel described in document 4 (see Paragraph 0010 and Figure 9) for the purpose of increasing the brightness would have been obvious to one skilled in the art.

Claim 2 does not appear to involve novelty or an inventive step in view of document 1, cited in the ISR.
(Remarks)
The wall-like projections (i.e., the partition layers 6, 7 perpendicular to separator 4) of the plasma display panel described in document 1 are provided so as to be perpendicular to the band-like partitions (i.e., separator 4 and the partition layers 6, 7 parallel to said separator).

Claim 2 does not appear to involve novelty or an inventive step in view of document 3.
(Remarks)
The wall-like projections (i.e., the protruding parts between semispherical recessed parts 18) of the plasma display panel described in document 3 are provided so as to be perpendicular to the band-like partitions (partitions 9).

Claim 3 does not appear to involve novelty or an inventive step in view of document 3.
(Remarks)
The wall-like projections (i.e., the protruding parts between semispherical recessed parts 18) of the plasma display panel described in document 3 are provided between cells so as to be perpendicular to the address electrodes, which are perpendicular to the electrode pairs, and are therefore provided in positions corresponding to the non-discharge region located between electrode pairs.

Claim 4 does not appear to involve an inventive step in view of documents 4 and 5.
(Remarks)
The phosphor layers of the plasma display panel described in document 4 exist in positions corresponding to the discharge regions. Therefore, it would have been obvious that applying the phosphor layer surface undulations described in document 5 to the plasma display panel described in document 4 would result in the projections being in positions corresponding to the discharge regions.

Claim 5 does not appear to involve novelty or an inventive step in view of document 2, cited in the ISR.
(Remarks)
The wall-like projections (sub ribs 6a) of the plasma display panel described in document 2 are provided so as to be parallel to the partitions. (See Figure 2.)

Claim 7 does not appear to involve novelty or an inventive step in view of document 3.
(Remarks)
The wall-like projections (i.e., the protruding parts between semispherical recessed parts 18) of the plasma display panel described in document 3 are provided between cells so as to be perpendicular to the address electrodes, which are perpendicular to the electrode pairs, and are therefore provided in positions corresponding to the non-discharge reverse slit located between electrode pairs.

Claim 8 does not appear to involve novelty or an inventive step in view of document 3.

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of Box V (Citations and explanations):

(Remarks)
The plasma display panel described in document 3 has a light reflection surface (reflective layer) formed below the phosphor. (See Paragraph 0027 and Figure 2.)

Claim 9 does not appear to involve novelty or an inventive step in view of document 1, cited in the ISR.
(Remarks)
Document 1 describes a plasma display panel provided with band-like partitions (i.e., separator 4 and the partition layers 6, 7 parallel to said separator) for dividing a discharge space and wall-like projections (i.e., the partition layers 6, 7 perpendicular to separator 4) lower than said band-like partitions formed inside the long, narrow grooves disposed between said band-like partitions. (See Figures 1 and 2.)

Claim 9 does not appear to involve novelty or an inventive step in view of document 2, cited in the ISR.
(Remarks)
This plasma display panel described in document 2 has wall-like projections (sub ribs 6a) disposed between the partitions which are lower than the partitions. (See Figures 1 and 2.)

Claim 9 does not appear to involve novelty or an inventive step in view of document 3.
(Remarks)
Document 3 describes a plasma display panel provided with band-like partitions (partitions 9) for dividing a discharge space and wall-like projections (i.e., the protruding parts disposed between semispherical recessed parts 18) lower than said band-like partitions formed inside the long, narrow grooves disposed between said band-like partitions. (See Paragraph 0037 and Figure 4.)

Claim 9 does not appear to involve an inventive step in view of documents 4 and 5.
(Remarks)
The idea of applying the technology for providing undulations in the surface of a phosphor layer described in document 5 to the plasma display panel described in document 4 (see Paragraph 0010 and Figure 9) for the purpose of increasing the brightness would have been obvious to one skilled in the art.

Claim 10 does not appear to involve an inventive step in view of document 2, cited in the ISR.
(Remarks)
The idea of applying the commonly known technology for increasing the light usage rate of a plasma display having a reflective phosphor arrangement by providing a reflective surface under the phosphor layer to the plasma display panel described in document 2 would have been obvious to one skilled in the art.

Claim 10 does not appear to involve novelty or an inventive step in view of document 3.
(Remarks)
In the plasma display panel described in document 3, a reflective layer is formed on the surfaces of the low wall-like projections (i.e., the protruding parts between semispherical recessed parts 18). (See Paragraph 0027 and Figure 2.)

Claims 10 and 11 do not appear to involve an inventive step in view of documents 4 and 5.
(Remarks)
In the plasma display panel described in document 4 (see Paragraph 0010 and Figure 9), the under layer of the phosphor layer is a reflective layer. Therefore, it is obvious that the surface of the projections will become a reflective surface if the technology for providing undulations in the under layer of a phosphor layer described in document 5 is adopted for the purpose of increasing the brightness.

Claim 11 does not appear to involve novelty or an inventive step in view of document 2, cited in the ISR.
(Remarks)
The projections described in document 2 are covered by a phosphor layer.

Supplemental Box
(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of Box V (Citations and explanations):

Claim 11 does not appear to involve novelty or an inventive step in view of document 3.
(Remarks)
The projections described in document 3 are covered by a phosphor layer.

Claim 12 does not appear to involve an inventive step in view of documents 4 and 5.
(Remarks)
Document 5 discloses a technology for forming projections out of phosphor layer material. (See Working Example 1.)

Claim 13 does not appear to involve novelty or an inventive step in view of document 3.
(Remarks)
The wall-like projections (i.e., the protruding parts between semispherical recessed parts 18) of the plasma display panel described in document 3 are provided between cells so as to be perpendicular to the address electrodes, which are perpendicular to the electrode pairs, and are therefore provided in positions corresponding to the non-discharge reverse slit located between electrode pairs.

Claim 17 does not appear to involve novelty or an inventive step in view of document 1, cited in the ISR.
(Remarks)
The plasma display panel described in document 1 is fabricated using a method for forming wall-like projections and partitions by using a process wherein (1) wall-like projections (partition layers 6, 7) having the same height are formed so as to intersect one another and separate protruding parts (separators 4) are stacked on top thereof.

Claim 20 does not appear to involve an inventive step in view of document 6 or document 7.
(Remarks)
Document 6 (or document 7) describes a method for forming complexly shaped partitions comprising high partition portions and low partition portions by providing a mask at different heights.

Claims 21 and 22 do not appear to involve an inventive step in view of documents 4 and 5.
(Remarks)
Document 5 discloses a technology for forming projections out of phosphor layer material. (See Working Example 1.)

Although document 5 does not specify the method for arranging the phosphor layer material, the idea of using the commonly practiced method of applying a phosphor paste would have been obvious to one skilled in the art.

The invention described in claim 6 is not disclosed in any of the documents cited in the ISR and thus possesses novelty. In particular, the idea of making the wall-like projections of first and second projections oriented in mutually intersecting directions is not even disclosed in document 1, which was found to be the most relevant example of the prior art.

The invention described in claims 14 and 15 is not disclosed in any of the documents cited in the ISR and thus possesses novelty. In particular, the method for developing the partition portion and the wall-like projection portion together and fabricating an original pattern is not even disclosed in document 1, which was found to be the most relevant example of the prior art.

The invention described in claim 16 is not disclosed in any of the documents cited in the ISR and thus possesses novelty. In particular, the idea of forming the projections and partitions by combining a sandblasting-resistant material and a material that is readily cut by sandblasting and conducting a two-stage sandblasting process is not even disclosed in document 1, which was found to be the most relevant example of the prior art.

The invention described in claims 18 and 19 is not disclosed in any of the documents cited in the ISR and thus possesses novelty. In particular, the method for developing the partition portion and the wall-like projection portion together is not even disclosed in document 1, which was found to be the most relevant example of the prior art.

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of Box V (Citations and explanations):

VI. Certain documents cited

1. Certain published documents (Rule 70.10)

Application No. Patent No.	Publication date *(day/month/year)*	Filing date *(day/month/year)*	Priority date (valid claim) *(day/month/year)*
JP,2000-40471,A[E,X]	08 February 2000 (08.02.2000)	22 July 1998 (22.07.1998)	
JP,11-204043,A[E,X]	30 July 1999 (30.07.1999)	28 August 1998 (28.08.1998)	30 August 1997 (30.08.1997)
JP,10-321148,A[E,X]	04 December 1998 (04.12.1998)	20 May 1997 (20.05.1997)	
JP,11-260264,A[E,X]	24 September 1999 (24.09.1999)	06 March 1998 (06.03.1998)	
JP,11-213896,A[E,X]	06 August 1999 (06.08.1999)	27 January 1998 (27.01.1998)	

2. Non-written disclosures (Rule 70.9)

Kind of non-written disclosure	Date of non-written disclosure *(day/month/year)*	Date of written disclosure referring to non-written disclosure *(day/month/year)*